PATENT CLAIMS

1. A turbocharger (1), comprising a turbine (2) with a turbine wheel (4) and a compressor (3) with a compressor wheel (7), the turbine wheel and the compressor wheel being connected via a shaft (10), the shaft being rotatably mounted between turbine wheel and compressor wheel, and the turbine wheel, the shaft and the compressor wheel being arranged in a housing (5, 9, 16) in such a way that, in the event of the compressor wheel (7) bursting, an axial force acting in the direction of the turbine (2) acts on the turbine wheel (4) and the shaft (10) connected to it, characterized in that a means (22, 25) for axially locking the shaft (10) and the turbine wheel (4) connected to it is arranged on the shaft (10) connected to the turbine wheel (4), the means (22, 25), in the event of the compressor wheel (7) bursting, preventing an axial movement of the shaft (10) and of the turbine wheel (4) connected to it in the direction of the turbine (2).

2. The turbocharger as claimed in claim 1, characterized in that the means (22, 25) for axially locking the shaft (10) interacts with bearing elements (18, 18a and 19) of the shaft (10).

3. The turbocharger as claimed in claim 1 or 2, characterized in that the means (22, 25) for axially locking the shaft (10) is essentially radially symmetrical.

4. The turbocharger as claimed in claim 1, 2 or 3, characterized in that the means (22, 25) for axially locking the shaft (10) is a locking ring (22) arranged on the shaft (10).

5. The turbocharger as claimed in claim 4, characterized in that an encircling annular groove (23)

for accommodating the locking ring (22) is arranged in the shaft (10), the inserted locking ring (22) projecting radially outward beyond this annular groove (23), the axial flanks of the annular groove (23) preferably enclosing the locking ring (22) axially in a precisely fitting manner or with clearance.

6. The turbocharger as claimed in claim 4 or 5, characterized in that the locking ring (22) is designed in the form of a snap ring or in the form of ring segments which can be joined together.

7. The turbocharger as claimed in claim 4, 5 or 6, characterized in that the locking ring (22), in the fitted state, is a closed ring enclosing the shaft (10).

8. The turbocharger as claimed in one of claims 4 to 7, characterized in that the locking ring (22) is enclosed radially on the outside by a locking element (27), radial clearance which is smaller than the radial depth of the annular groove (23) being provided when stationary, so that the locking element (27) holds the locking ring (22) in the annular groove (23) during operation.

9. The turbocharger as claimed in claim 8, characterized in that the locking ring (22), in particular by means of the locking element (27), is free of load in the axial direction when stationary and during normal operation.

10. The turbocharger as claimed in claim 8 or 9, characterized in that the locking element (27) is designed in the form of a sealing disk (20) having a recess (24) open on the turbine side, and the axial extent of the recess (24) is greater than the axial extent of the locking ring (22), whereas the radial

extent of the recess (24) is dimensioned in such a way that it encloses the locking ring (22) when stationary preferably only with slight radial clearance.

11. The turbocharger as claimed in claim 1, 2 or 3, characterized in that the means (22, 25) for axially locking the shaft (10) is a retaining sleeve (25) fastened to the shaft (10).

12. A means for axially locking a shaft (10) and the components of a turbocharger which are firmly connected to this shaft, a turbine wheel (4) and a compressor wheel (7) being arranged in a rotationally fixed manner on the shaft, the shaft being rotatably mounted between turbine wheel and compressor wheel, and the turbine wheel, the shaft and the compressor wheel being arranged in such a way that, in the event of one of the two impellers bursting, an axially acting force acts on the shaft and on the components firmly connected to it, characterized in that said means (22, 25) is connected to the shaft (10) in such a way that it interacts with bearing elements (18, 18a and 19) of the shaft (10) if the bursting occurs, so that the axially acting force is compensated for by this interaction and an axial movement of the shaft (10) and of the components (4) firmly connected to it is prevented.